Pleiades Front-End Usage Guidelines

Category: Computing Policies

DRAFT

This article is being reviewed for completeness and technical accuracy.

The front-end systems pfe[1-12] and bridge[1,2] provide an environment that allows you to get quick turnaround while performing the following:

- file editing
- compiling
- short debugging and testing session
- batch job submission to the compute systems

Bridge[1,2], with 4 times the memory on pfe[1-12] and better interconnects, can also be used for the following two functions:

1. **Post processing**

   These nodes have 64-bit versions of IDL, Matlab, and Tecplot installed and have 64 GB of memory (4 times the amount of memory on pfe[1-12]). The bridge nodes will run these applications much faster than on pfe[1-12].

2. **File transfer between Pleiades and Columbia or Lou**

   Note that both the Pleiades Lustre filesystems (/nobackupp[10-70]) and the Columbia CXFS filesystems (/nobackup1[1-h], /nobackup2[a-i]) are mounted on the bridge nodes.

   To copy files between the Pleiades Lustre and Columbia CXFS filesystems, log in to bridge[1,2] and use the *cp* command to perform the transfer. The 10 Gigabit Ethernet (GigE) connections on the two bridge nodes are faster than the 1 GigE used on pfe[1-12], therefore, file transfer out of Pleiades is improved when using the bridge nodes.

   File transfers from bridge[1,2] to Lou[1,2] will go over the 10 GigE interface by default. The commands *scp*, *bbftp*, and *bbscp* are available to do file transfers. Since *bbscp* uses almost the same syntax as *scp*, but performs faster than *scp*, we recommend using *bbscp* over *scp* in cases where you do not require the data to be encrypted when sent over the network.

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The pfe systems ([pfe1-12]) have a 1 GigE connection, which
can be saturated by a single secure copy (scp). You will see
bad performance whenever more than one file transfer is
happening. Use of bridge1 and bridge2 for file transfers is
strongly recommended.
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File transfers from the compute nodes to Lou must go through pfe[1-12] or bridge[1,2] first, although going through bridge[1,2] is preferred for performance consideration. See Transferring Files from the Pleiades Compute Nodes to Lou for more information.

When sending data to Lou[1-2], please keep your largest individual file size under 1 TB, as large files will keep all of the tape drives busy, preventing other file restores and backups. To prevent the filesystems on Lou[1-2] from filling up, please limit total data transfers to 1 TB and then wait an hour before continuing. This allows the tape drives to write the data to tape.

Additional restrictions apply to using these front-end systems:

1. No MPI jobs are allowed to run on pfe[1-12], bridge[1,2]
2. A job on pfe[1-12] should not use more than 8 GB. When it does, a courtesy email is sent to the owner of the job.
3. A job on bridge[1,2] should not use more than 56 GB. When it does, a courtesy email is sent to the owner of the job.

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